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ABSTRACT OF THE DISCLOSURE

The apparatus comprises a displacement pump with at least one flow vessel, with a pump drive, and with a support means for holding the flow vessel. Furthermore, the apparatus comprises a measuring arrangement responsive to the displacement motions performed by the flow vessel, wherein said displacement motions are picked up by a pressure sensor disposed at the flow vessel or by a strain sensor disposed at the support means. The measuring arrangement serves to sense an actual displacement motion of the flow vessel robustly and reliably, and to deliver a measurement signal representative of this motion. The signal is particularly suited for generating a flow rate estimate representative of the instantaneous volume flow rate and/or for generating a status signal signaling a current operational status. Further, a method is disclosed which supplies information serving to monitor such an apparatus. The apparatus is suitable for using in a sampler.